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Daniel J. Wilkinson

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PATEL, VISHAL A

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* DANIEL J. WILKINSON

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Appeal 2008-0896  
Application 10/605,988  
Technology Center 3600

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Decided: April 25, 2008

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Before MURRIEL E. CRAWFORD, LINDA E. HORNER, and MICHAEL  
W. O'NEILL, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Daniel J. Wilkinson (Appellant) seeks our review under 35 U.S.C.  
§ 134 of the final rejection of claims 1-18. We have jurisdiction under 35  
U.S.C. § 6(b) (2002).

Appeal 2008-0896  
Application 10/605,988

## SUMMARY OF DECISION

We REVERSE.

## THE INVENTION

The Appellant's claimed invention is to a piston ring assembly having an expander such that radial compression on upper and lower piston rings induces axial expansion of the expander. Claim 1, reproduced below, is representative of the subject matter on appeal.

1. A piston ring assembly, comprising:
  - an upper ring;
  - a lower ring;
  - wherein a first portion of said upper ring is in contact with a corresponding first portion of said lower ring; and
  - an expander positioned between corresponding second portions of said upper ring and said lower ring, said expander including apexes adapted to contact said second portions of said upper and lower rings;
  - wherein radial compression of said upper and lower rings induces axial expansion of said expander.

## THE REJECTIONS

The Examiner relies upon the following evidence in the rejections:

Wuerfel	US Re. 20,256	Jan. 26, 1937
Landon	US 2,323,815	Jul. 6, 1943
Fall	US 2,349,903	May 30, 1944

The following rejections are before us for review:

1. Claims 1-3, 6, 7, and 17 are rejected under 35 U.S.C. § 102(b) as anticipated by Fall.
2. Claims 4, 5, 9-13, 15, 16, and 18 are rejected under 35 U.S.C. § 103(a) as unpatentable over Fall and Landon.
3. Claim 8 is rejected under 35 U.S.C. § 103(a) as unpatentable over Fall and Wuerfel.
4. Claim 14 is rejected under 35 U.S.C. § 103(a) as unpatentable over Fall, Landon, and Wuerfel.

#### ISSUE

The Appellant contends that Fall fails to disclose a piston ring assembly having an expander “wherein radial compression of said upper and lower rings induces axial expansion” of the expander (App. Br. 6). The Examiner found that Fall meets this limitation because Fall’s expander and rings have the same structure as the claimed expander and rings (Ans. 4). The issue before us is whether Fall discloses, either explicitly or inherently, an expander that undergoes axial expansion upon radial compression of upper and lower piston rings.

#### FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. The expander rings (15, 18) of Fall are shown disposed and oriented between the upper and lower piston rings (10, 11) such that the rings are held against the sides of the groove (12) and are pressed resiliently outwardly against the cylinder wall (14) by apices (15b) of the expander rings (15, 18) (Fall, Figs. 1, 3).
2. In particular, Fall discloses, “It may be noted from Figure 1 that the concave or relatively straight portions 15a of the expander ring 15 bear against the bottom of the groove 12 and that the corners 15b bear against the ring segments 10 and 11, thus pressing the ring segments 10 and 11 radially outwardly with respect to the piston 13” (Fall, p. 1, col. 2, ll. 37-43).
3. As such, radial compression of the rings would induce radial compression of the expander, but it would not necessarily cause axial expansion of the expander, as claimed.
4. The split 15c in the expander 15 does not necessitate a finding that the expander expands in an axial direction upon radial compression of the piston rings. Rather, the split 15c widens or narrows in response to radial expansion or contraction of the piston rings.

5. Landon discloses a pair of flat upper and lower oil-control members 1, 2 and a corrugated spacer member 3 in between which exhibits some axial resilience to help hold the members 1, 2 in contact with the sides of the piston ring groove (Landon, p. 1, col. 2, ll. 9-39; Fig. 1).
6. Landon does not disclose a configuration that would cause the spacer member 3 to expand axially upon radial compression of the upper and lower members 1, 2. Rather, radial compression of the upper and lower members 1, 2 would have no effect on spacer member 3.
7. Wuerfel discloses upper and lower rings 12, 13 and a flat ribbon expander spring 28 provided between inner circumferential walls of the rings 12 and 13, and the inner wall or “bottom” 27 of a ring groove 14 (Wuerfel, p. 2, col. 2, ll. 22-31, Fig. 2). The rings 12, 13 are urged radially outwardly by expander spring 28 (Wuerfel, p. 2, col. 2, ll. 44-48).
8. Wuerfel does not disclose a configuration that would cause the expander spring 28 to expand axially upon radial compression of the upper and lower rings 12, 13. Rather, radial compression of the upper and lower rings 12, 13 would cause corresponding radial compression of expander spring 28.

## PRINCIPLES OF LAW

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior

art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). “It is well settled that a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it. Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates.” *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002) (citations and internal quotation marks omitted). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) (citations and internal quotation marks omitted).

Once a *prima facie* case of anticipation has been established, the burden shifts to the Appellant to prove that the prior art product does not necessarily or inherently possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977) (“Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product.”). *See also In re Spada*, 911 F.2d 705, 708-09 (Fed. Cir. 1990). “[A] *prima facie* case of anticipation [may be] based on inherency.” *In re King*, 801 F.2d 1324, 1327 (Fed. Cir. 1986).

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S.Ct. at 1734 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *see also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *See Oetiker*, 977 F.2d at 1445; *see also Piasecki*, 745 F.2d at 1472. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *Id.*

## ANALYSIS

### *Rejection under 35 U.S.C. § 102(b)*

The Appellant contends that Fall fails to disclose a piston ring assembly having an expander “wherein radial compression of said upper and lower rings induces axial expansion” of the expander (App. Br. 6). In particular, the Appellant contends that Fall does not contain any statement



that its expander ring undergoes axial expansion, and Fall's disclosure clearly indicates that the referenced expansion is radial, not axial (*id.*).

We agree. Fall's expander rings press the upper and lower piston rings (10, 11) radially outwardly with respect to the piston (Facts 1, 2). As such, radial compression of the rings would induce radial compression of the expander, but it would not necessarily cause axial expansion of the expander, as claimed (Fact 3). Further, the split 15c in the expander 15 widens or narrows in response to radial expansion or contraction of the piston rings and does not necessitate a finding that the expander expands in an axial direction upon radial compression of the piston rings (Fact 4). The Examiner has failed to show how Fall's expander necessarily operates such that radial compression of the upper and lower rings induces axial expansion of the expander. Thus, we will not sustain the rejection of claim 1, or its dependent claims 2, 3, 6, 7, and 17 as anticipated by Fall.

#### *Rejections Under 35 U.S.C. § 103(a)*

Claims 4, 5, 8, and 15 depend from claim 1, and thus also contain the limitation from claim 1, "wherein radial compression of said upper and lower rings induces axial expansion" of the expander. Independent claim 9, and its dependent claims 10-14, 16, and 18, likewise recite "wherein radial compression of said upper and lower rings induces axial expansion of said generally sinusoidal expander for urging said upper and lower rings against the upper and lower surfaces of the piston ring groove." The Examiner rejected claims 4, 5, 8-16, and 18 as unpatentable over Fall and Landon and/or Wuerfel. Neither Landon nor Wuerfel cures the deficiency of Fall

(Facts 5-8). As such, the Examiner has failed to set forth a prima facie case of obviousness of these claims. Thus, we will not sustain the rejections of claims 4, 5, 8-16, and 18 under 35 U.S.C. § 103(a).

### CONCLUSIONS OF LAW

We conclude the Appellant has shown that the Examiner erred in rejecting claims 1-3, 6, 7, and 17 under 35 U.S.C. § 102(b) as anticipated by Fall, and erred in rejecting, under 35 U.S.C. § 103(a), claims 4, 5, 9-13, 15, 16, and 18 as unpatentable over Fall and Landon, claim 8 as unpatentable over Fall and Wuerfel, and claim 14 as unpatentable over Fall, Landon, and Wuerfel.

### DECISION

The decision of the Examiner to reject claims 1-18 is reversed.

REVERSED

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